

was also found to be the case with the thickened roots of *Anemonella*, though in greatly increased amounts.

A study of the histology of the stem and root showed the presence of the usual elements of higher plant structure. The fibro-vascular bundles of the stem were some five to seven in number, of the usual form, and forming a circle about the hollow of the stem.

The root in the smaller and normal portions showed likewise no specially peculiar characters, but in the thickened portions exhibited a peculiarity quite interesting. The thickening seems due almost entirely to a special redundancy, or increase of the cells of the central cylinder, chiefly of the conjunctive parenchyma.

The histology of these thickened tuberous portions very clearly shows that they are true roots. The fibro-vascular bundles are centrally located, but very materially altered in appearance by the excessive development of conjunctive parenchyma. This thickening gradually crowds the endodermis toward the surface of the root, till in the older portions it would not be recognized except by very careful observations, but might easily be mistaken for an inner-like border of subepidermal tissue. The arrangement of the elements of the fibro-vascular bundles is also somewhat peculiar. In general they present the aspect of a biradial bundle, with the phloem elements greatly compressed and extending through the redundant parenchyma toward the endodermis something after the manner of a medullary ray. In some cases the bundles assume what might be called a triradial form, there being three of the diverging phloem masses.

This preliminary report must be considered as somewhat tentative, as I have not yet finished the micro-chemical study of the elementary structure of all the parts. I hope soon to have ready a full account of studies upon its general anatomy and organogeny, with a series of figures illustrating points of special interest and importance.—C. W. HARGITT,
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EDITORIAL.

[The editors of the GAZETTE depart from their custom in presenting as an editorial the following, from a prominent botanist, as an incisive expression of their own sentiments.]

THE EDITORIAL in the last GAZETTE, on botanical instruction in the colleges and universities of the United States, is certainly a timely one. The one-sided method of teaching biology pursued in one of our great universities and emphasized in more than one text-book is distinctly deplorable. One even notes in certain circles a tendency to read botany out of the scientific party altogether. I do not know whether the workers on animals have become ashamed of the word "zoölogy" or not—surely they have no more reason to discard it than botanists have to discard the word "botany," for both are connected with some very bad and very much abandoned methods of teaching—but there are a number of

zoölogists who talk of "animal biology," and manifest at the same time a peculiar facility for dropping the modifying adjective noun. So we hear of "biology"—and that means echinoderms and whales and salpa-chains and the embryology of the guinea-pig. It occasionally means the fibro-vascular bundle of *Pteris*, but this poor, lonely *Pteris* comes in timidly and in great confusion, amid the eccentric hydroids and cetaceans. I have had students observe to me with winning confidence that they have "had" botany, but "biology,"—that is mystery still. Men are sent out from the university referred to in the GAZETTE editorial, and from other American institutions, who are totally devoid of any botanical training and totally pervaded with an uncontrollable yearning to label their zoölogical courses with the word "biology." I notice in the introduction of Dr. D. H. Campbell's very excellent little text-book on structural and systematic botany, lately from the press, the following clear definition of the term biology: "The science that treats of living things irrespective of the distinction between plant and animal is called 'Biology.'" That is the generally accepted meaning of the word, and it is as exhilarating to observe zoölogists attempting to preëempt the whole field with calm unphilological assumption as it would be to hear an electrician call his science "engineering" or a Greek instructor talk of "language study," meaning thereby the accentuation of Homer or Thucydides. Doubtless this uncritical use of terminology is fostered by the uncritical study of biology which obtains whenever the great coördinate branch of botany is lopped off and thrown in the fire as a preliminary. Possibly, too, it is due to diffidence and possibly to sheer ignorance. But principally, I am inclined to think, it is the child of shrinking one-sidedness, the progeny of ill-balanced courses of study and of past iniquity in methods of zoölogical instruction which makes the very word "zoölogy" distasteful to the teacher of to-day.

OPEN LETTERS.

Rattlesnake antidote.

"Important if true" is a motto often illustrated in botanical research. This very week a gentleman has died in our vicinity who was bitten by a rattlesnake—died though he had the nerve to amputate his own finger with his jack knife on the field.

A clergyman of this region, the Rev. Mr. Clark, who has been in the state since the early history of it as a territory, has for two years been calling my attention to a weed by which he claims to have saved several lives. He claims it to be a safe and sure cure for rattlesnake bite. This week I have at last succeeded in getting from him the plant in bloom, and it proves to be *Hieracium Scouleri* Hook. He is very anxious that I should publish the plant and the method of use. The plant is taken up whole and fresh, though he believes it can be made into a druggist preparation by pulverized powders, or a decoction, or an extract. The plant